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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

WOLLSCHLAGER, JEFFREY MICHAEL

ART UNIT	PAPER NUMBER
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1732

DATE MAILED: 10/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/656,661	Applicant(s) HANSFORD ET AL.	
	Examiner Jeff Wollschlager	Art Unit 1732	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 August 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 and 36-47 is/are pending in the application.
- 4a) Of the above claim(s) 1-11 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 36-47 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 August 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

Applicant's amendment to the claims filed August 1, 2006 has been entered. Claims 12-35 have been cancelled. New claims 36-47 have been entered and are currently under examination. Claims 1-11 remain withdrawn from consideration as being directed to a non-elected invention.

Drawings

The content of the corrected drawings, filed August 1, 2006 is accepted. However, new corrected drawings in compliance with 37 CFR 1.121(d) are required in this application because the application admits of illustration by clear drawings to facilitate understanding of the invention. Applicant is advised to employ the services of a competent patent draftsman outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

Claim Objections

Claim 38 is objected to for the following informalities: polymethacrylic acid and sulfonated polyaniline are misspelled.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 36-40 and 42-47 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 3, 14 and 18 of copending Application No. 10/700,715.

Regarding claims 36, 37, 42 and 44, although the instant claims and the '715 claims are not identical, they are not patentably distinct from each other because the instant claims are merely broader versions of claim 1 of the '715 application. Therefore, they are not patentably distinct therefrom, since they are effectively anticipated by the pending '715 claims.

Regarding claim 38, claim 3 of the '715 application discloses the polymer may be poly (propylmethacrylate).

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Regarding claims 39 and 40, claim 18 of the '715 application discloses the claimed sacrificial layer may be polyvinyl alcohol.

Regarding claim 43, claim 14 of the '715 application claims multiple layers of polymers.

Regarding claim 45, the '715 application discloses recovering the particles (paragraphs [0045-0046]). Recovering the particles by filtering, for example, would have been obvious to the ordinarily skilled artisan.

Regarding claim 46, the '715 specification discloses the solvent is water.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 36-47 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 36 recites that an array of free-standing particles is formed by soft lithography. The field of soft lithography encompasses a wide variety of different

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methods. This recitation is broader than is supported by the specification. Further, forming an array of free-standing particles is broader than is supported by the specification because this recitation also reads on methods where free-standing microparticles remain attached to the array after a continuous array, for example, is released from a sacrificial layer.

Claim 37 recites that the polymer in the microwells or micropillars is transferred to the sacrificial layer. Claim 44 recites that the polymer is transferred from the microwells after the polymer is removed from the micropillars. As such, claim 37 is broader than is supported by the specification because the only method for transferring polymer from the microwells supported by the specification is a method that requires removal of the polymer from the micropillars before transferring the polymer in the microwells to the sacrificial layer.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 36-47 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 36 and 37 are indefinite because the "polymer microparticles" that are released are referred to as "generally flat thermoplastic polymer microparticles have predetermined lateral shapes" and an "array of free-standing polymer microparticles". It is unclear what limiting effect these recitations provide the claim. For example, are the

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free-standing polymer microparticles necessarily individual particles upon their release (as shown in Figures 2f, 3e, or 4h, for example) or can they stand freely while remaining attached to the array? Further the recitations "generally flat" and "predetermined lateral shapes" are unclear as to their limiting effect.

Claims 37 and 42 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. The omitted steps are: the manipulative steps required to transfer polymer from the microwells to the sacrificial layer without transferring material from the micropillars to the sacrificial layer.

Claim Rejections - 35 USC § 102

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 36-38 and 47 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Mau et al. (WO01/21863; published March 29, 2001).

Regarding claims 36 and 37, Mau et al. teach a process for producing carbon nanotubes comprising forming an array of free-standing polymer microparticles by soft lithography on a coated substrate and contacting the coating on the substrate with a liquid, such as a hydrofluoric acid solution to separate the nanotubes from the substrate. Mau et al does not expressly state he recovers the nanotubes or that the coating dissolves in the liquid. However, the coating would necessarily dissolve in the strong acid and the nanotubes would be recovered from the liquid after an appropriate period (page 1, lines 27-29; page 2, line 30-page 4, line 5; page 4, lines 15-16; page 5, line 4-10; page 7, lines 9-17; page 14, lines 3-5; page 15, lines 7-16).

Alternatively, it would have been *prima facie* obvious to one having ordinary skill in the art at the time of the claimed invention to recover the nanotubes from the

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hydrofluoric acid solution and to allow the coating to dissolve, for an appropriate period (page 7, lines 9-17) for the purpose of effectively separating the nanotubes from the substrate.

As to claim 38, Mau et al. teach the polymer may be polymethyl methacrylate (page 2, line 30 – page 4, line 5).

As to claim 47, Mau et al. teach the stamp is PDMS (page 1, lines 11-16).

Claims 36-38 and 47 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Arias et al (U.S. Patent 6,663,820; priority date March 14, 2001).

Regarding claims 36 and 37, Arias et al. teach a method of producing microneedles/microcups comprising: forming an array of free-standing polymer particles by soft lithography on the sacrificial layer of a substrate comprising a base layer and a sacrificial layer and contacting the sacrificial layer with a liquid to release the array of polymeric microparticles from the sacrificial layer (Abstract; col. 3, lines 4-20; col. 6, lines 11-24; col. 8, lines 19-34 and 51-52; col. 9, lines 40-59; col. 21, lines 5-10; col. 25, lines 42-51; col. 26, lines 30-42) wherein the substrate/wafer is coated with a sacrificial layer (col. 15, lines 6-18) and the mold is coated with a polymer (col. 18, lines 46-55). Arias et al. does not expressly define a manipulative process step for dissolving the sacrificial layer in a liquid. However, this is the process step clearly employed by Arias et al. to remove the sacrificial layer (col. 6, lines 11-24).

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Alternatively, it would have been *prima facie* obvious to one having ordinary skill in the art at the time of the claimed invention to employ the disclosed solubility of the sacrificial layer in a solvent by dissolving the sacrificial layer in a liquid/solvent for the purpose of completely removing the microneedled array from the substrate, as is routinely practiced in the art.

As to claim 38, Arias et al. teach the polymer may be polymethyl methacrylate (col. 18, lines 46-55).

As to claim 47, Arias et al. employ PDMS in various ways, including as a stamp/mold.

Response to Arguments

Applicant's arguments with respect to claims 12-35 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

All claims are rejected.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeff Wollschlager whose telephone number is 571-272-8937. The examiner can normally be reached on Monday - Thursday 7:00 - 4:45, alternating Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Johnson can be reached on 571-272-1176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.


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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JW

Jeff Wollschlager
Examiner
Art Unit 1732

October 3, 2006


CHRISTINA JOHNSON
PRIMARY EXAMINER
10/14/06